

ANIMAL SCIENCE STOCK REPORT

Summer 2005

From drawing board to reality

After nearly three years, the vision for the animal science department's new **Beef Center** is soon to be realized. The plans are complete and the project is in the bidding process, with site preparation and construction set to take place this November.

The **Animal Nutrition Center** will soon follow suit as its final designs for feed manufacturing come together. The **Meat Processing Center** and the expanded **Beef Cattle Evaluation Center** are already on the drawing board, cementing the certainty for the department's new and improved facilities.

"The new facilities will have a major impact on our ability to integrate cutting-edge technology into our teaching and applied research programs," said Andrew Thulin, the animal science department head. He also emphasized that students will benefit greatly, not only from the hands on learning the new facilities and equipment will provide, but also from the direct interaction with private industry through applied research and industry short courses that will be conducted in these facilities.

Both necessity and need paved the way for the facility relocations. Cal Poly's Student Housing North Project, which is set to accommodate 2,700 students, is being constructed where the current Bull Test site and feed mill are located.

The Beef Center, which will house the current Bull Test, heifer development, artificial insemination and embryo transfer programs, will be the first facility to be built. Professor and Beef Specialist Mike Hall has been involved with the design since day one. "The biggest thing that the new beef center

means is a new, modern facility incorporating better technologies with a lot of things we already have. It puts us in a better position for future learning opportunities," he said.

This future includes enhancing an already aggressive bovine embryo transfer program and expanding genetic marker testing to evaluate desirable traits.

Located east of Cuesta College and Highway 1, on Cal Poly's Escuela Ranch, the new Beef Center will have easy access to 2,200 acres of rangeland.

This new Beef Center boasts several new upgrades that will accelerate the beef program to an even greater status. The main beef technology building supports a wide range of activities—from students' academic laboratory coursework to enterprise projects to industry-related opportunities. This site will also accommodate living quarters for the four student employees that work and manage the Beef Center.

Seven "pie-shaped" feeding pens, each approximately 2 to 3 acres, are set to be installed, along with eight lay-up pens for sick bulls during the Bull Test, as well as a heifer development program when the Bull Test is not in operation. There will also be a processing area dedicated to safely, humanely and efficiently handling cattle for inspection, doctoring sick animals and conducting reproduction-related activities.

A commodity barn will be built to store concentrates for the bulls on the Bull Test and cows for the embryo transfer and heifer development programs. This facility will also store about 120 tons of hay.

(continued on page 2)



The Vision Continues

From Department Head Andrew J. Thulin

As you read through this newsletter, you will notice that the animal science department just concluded another successful year with many exciting developments.

However, there will be little time for catching our breath as the department faces several challenges in the coming academic year.

The department had two **faculty positions** open for the new academic year. We completed one search by hiring Pete Agalos to teach the equine behavior modification classes beginning in September. We continue our search for a reproductive physiologist to take leadership for our embryology initiative in the horse and beef areas.

The department is also underway with an **Academic Program Review**, which is required by the university every five years. In general, this is accomplished by reviewing our mission and goals, our curriculum through which our mission and goals are pursued, the extent to which we are achieving our objectives for student learning, the quality and diversity of our faculty and staff, and the infrastructure supporting the program. Our self-study will be reviewed by internal and external reviewers during late fall.

The **relocation of the animal science facilities** is the largest challenge the department has faced in over 50 years. The relocation comes at a time when the state of California no longer provides sufficient funding to support academic programs. The department was provided about \$8 million to move the beef facilities (bull test and feedlot), the feed mill, and the meat harvest and processing facilities. Unfortunately, the estimated cost of relocating these facilities is about \$12 million. New requirements for clean air, water quality, food safety, etc, along with dramatically increased concrete and steel costs over the past few years, have resulted in the higher cost. Therefore, the department will need to work with alumni, friends and industry to provide the \$4 million needed to complete the relocation of these facilities. To meet this challenge and raise adequate funding within the next six months, we need your help. The animal science department has a tradition of excellence in undergraduate education and your help will ensure that the generations to come will be able to share in this strong tradition.

For more information on how you can help, please e-mail me at athulin@calpoly.edu or call (805)756-2419. Updates regarding the relocation of the different facilities can be found at www.animalscience.calpoly.edu.

Cover story continued...

Hall supervised several senior projects that directly lead to the final design for the Beef Center. Last year, an agricultural engineering student developed a comprehensive design of the new facilities and Hall turned those plans over to a design engineer, who then developed the final plans.

The new Beef Center is expected to cost approximately \$2.5 million, with the state covering the majority of the cost. Some of the cost will also be covered by private donors and friends of the department.

The **Animal Nutrition Center** will be a key addition to the department. The feed mill will include new technologies such as allowing diets to be double-ground for uniform particle size; portion control to allow small batch sizes; and a conditioning system for evaluating heat, steam and pressure on feed additives such as enzymes. “The animal nutrition and feed manufacturing industries in California have high demand and salaries for well trained graduates with manufacturing

and processing knowledge for the poultry, companion animal, equine and dairy industries,” said Thulin. Along with a modernized feed mill, the center will also provide an ideal location to conduct industry short courses and expand applied research efforts within the animal nutrition industry.

The new **Meat Processing Center** will centralize the harvesting, processing and production facilities, all in one location near the Cal Poly Poultry Center.

According to Thulin, once the new Meat Processing Center is constructed, Cal Poly’s meats program will have the opportunity to become the center of excellence for meat food processing in the Western states.

As with the Animal Nutrition Center, the meat food processing industry in California provides numerous high paying jobs for students interested in areas such as meat processing, food safety, Hazard Analysis Critical Control Points (HACCP), and development of ready-to-eat products. **-P**

'Oceans of opportunity' for prospective Cal Poly students

Prospective students received an enticing offer from the Animal Science Department as professors and students explained why Cal Poly has one of the best animal science programs in the nation.

"All is not as it appears," Department Head Andrew Thulin told a group of about 80 admitted students at Open House on April 15, 2005. "Animal science at Cal Poly is not animal science anywhere else." In all, over 175 prospective students visited Cal Poly's animal science department for Open House and the two weeks leading up to it.

The most attractive aspect of the program is its hands on, "Learn-By-Doing" approach to curriculum. "Many of you have not touched a cow, a sheep or a pig," Thulin said, "But you will learn about all of these animals and more."

The prospective students also heard from four animal science seniors, all with their own story of encouragement. Garret Guenther was a transfer student who was enticed by the pre-vet program at Cal Poly. During his studies he branched out from

the pre-vet curriculum and started taking classes in biotechnology and microbiology. "It's very interesting and on the cutting edge; you have the ability to discover new information," Guenther said.

This fall, Guenther will be attending

UC Irvine to obtain his PhD in Immunology. "Cal Poly has a lot to offer besides their pre-vet curriculum. By taking different classes you can find your niche; and worse case scenario it may only reinforce your original goals."

Jessica Melinat, who graduated in June, told prospective students she was originally interested in Cal Poly's equine program. However, once she transferred to Cal Poly she took a class in embryology. "It was the most amazing class I've ever taken," Melinat said.

"Cal Poly has a lot to offer besides their pre-vet curriculum. By taking different classes you can find your niche; and worse case scenario it may only reinforce your original goals."

— Garret Guenther



Department Head Andrew Thulin spoke to parents about what Cal Poly has to offer their sons and daughters, including proximity to the beach.

Melinat was recently hired at the Northern California Fertility Medical Center (NCFMC) in Roseville, Calif. "I'm going to go help couples have babies," she said with an excited smile. As of yet, there is no degree for human embryology; but Melinat's concentration in animal embryology helped her to transition to the human field.

Shannon Findley walked up to the horse unit as a freshman and hasn't left since. Findley came to Cal Poly as a pre-vet and found it was a perfect fit. Findley currently helps run the equine embryo research project at the equine unit with Professor Matt Burd. "What is important for you to know about the program at Cal Poly is that you're going to be working with animals and in the field as freshmen, not just in your third or fourth year," she told the group of prospective students.

Kelly Churchill had a very important message for the prospective students. "The first year I tried to apply to veterinary school, I was rejected from all of them." But as she stood before the students, she proudly announced that this year she had been accepted to UC Davis' veterinary school, a coveted program. Churchill added a minor and more experience to her resume and said that was her ticket to acceptance. "Persistence is key," Churchill said.

Cal Poly was the perfect place for Churchill to gain that experience. "The opportunities are endless; if you want opportunity, you definitely need to come to Cal Poly. Being pre-vet students, you have a demanding curriculum, but you get to balance it with a lot of rewarding classes and labs too." **-P**

**AT THE 49TH ANNUAL
Cal Poly Performance
Bull Test Sale
Sunday, October 2, 2005
Cal Poly Beef Unit**

Annual Field Day and Trade Show -
Saturday, October 1, 2005

<http://bulltest.calpoly.edu>



**323 Yearling Bulls on Test
6 Breeds, 2 Composites
226 Angus, 24 Charolais
Top 50% sell at 1 p.m.**

**NEWEST TECHNOLOGY—
All Bulls Tested:**

- PI-BVD Negative -
 - Latest Value EPDs for all bulls
 - EID tagged and enrolled in FAIR
- (National Farm Animal Identification Records)

New equine facilities allow for even more excellence

After five years of conception and planning, Cal Poly's Equine Unit is home to two new horse barns. The 40-stall multi-purpose barn was completed in May, while the 13-stall mare barn was installed in late June.

This expansion provided the room necessary to accommodate the growing number of students who are involved with the equine program.

Equine Professor Matt Burd said that they will likely fill the 13-stall barn with mares during the breeding season and then the overflow will be housed at the 40-stall barn. The 40-stall barn is used for breeding horses, riding horses and the different equine classes and enterprises that Cal Poly offers.

Besides the horses, it is the students who benefit most from these new barns. "To them, it is a source of pride," Burd said. "They feel validity in what they are doing; to see the school spend the money to benefit them gives these students a sense of what they're doing is worthwhile."

Coinciding with that sense of value is pride in the new image. With these new barns, enterprises like the Ranch Horse Sale can preview and prep their horses in a clean, modern facility. Along those lines, it opens the door for enterprises to expand and become even better than they already are.

Nearly a decade of hopes and wishes came true as the new barns reached completion. Mike Lund, former lecturer and equine breeding manager, and Roger Hunt, former professor and equine specialist, played an integral part in the early conceptual stages.

"I think it will make [the equine unit] so much nicer, there are so many more options," Lund said. "It will enhance the whole educational experience."



The 40-stall barn houses a variety of horses and provides students with a clean, modern working environment.

explained that besides the construction of these barns, Cal Poly has upgraded the equine center in many ways. New fencing, new manure management and new water management are just some of the improvements to the equine program. "We are trying to bring equine science to an even greater level," Burd said.

None of these opportunities would have been possible without the generous donations from the Sonoma Mountain Institute (SMI) and Kenny Hollister with Horse Housing Construction. SMI made a multi-year pledge gift of \$150,000, which helped cover a major portion of the 40-stall barn project's cost.

Burd mentioned that Animal Science Department Head Andrew Thulin played a valuable role in upgrading these facilities. "We wouldn't have been able to get this done without his vigilance," Burd said of Thulin. **-P**

Poultry poster takes top honors

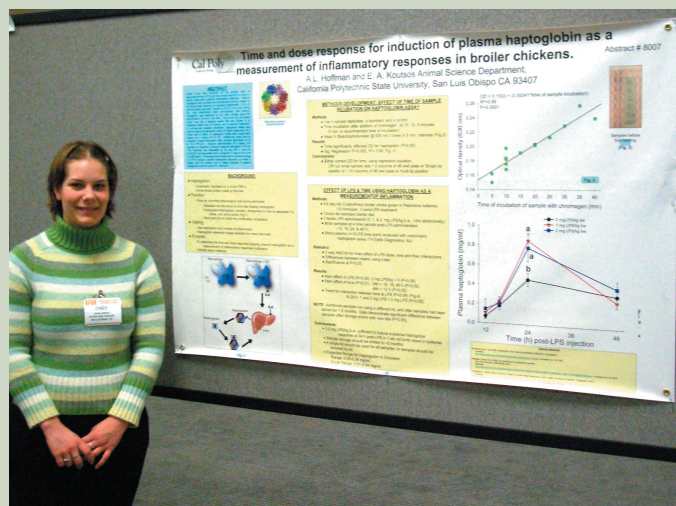


photo courtesy of Professor Elizabeth Koutsos

For the second year in a row, a Cal Poly undergraduate won a poster contest in a traditionally graduate-level competition.

Annika Hoffman, animal science senior, took top honors for her senior project "Time and dose response for induction of plasma haptoglobin as a measurement of inflammatory response in broiler chickens" at the International Poultry Scientific Forum in Atlanta, Ga. on January 24 and 25 of this year.

Hoffman was one of two undergraduate Cal Poly students to compete. She said she enjoyed the "opportunity to meet students with the same interests and be exposed to graduate programs from all over the country."

Assistant Professor and Nutrition Specialist Elizabeth Koutsos was responsible for obtaining the "Interactions between poultry health and nutrition" grant from the California Agricultural Research Institute, which financed all of Hoffman's research and travel expenses.

"[This project] was instrumental because it established consistent methods for our immune response research," Koutsos said.

In 2004, Angela Amato won the competition with her poster, "Effect of Dietary Copper Chloride on Inflammatory Response of Broiler Chicks." **-P**

Alumna shares impressions and lessons of Africa -

Editor's Note: Abbey Kingdon, a 2004 graduate of the animal science department and former editor of the Stock Report, recently completed an internship in South Africa. Originally, she planned to travel to Zimbabwe, but sociopolitical instability in the country at the time of her trip diverted her south, to South Africa. She now lives in Modoc County, Calif., where she is the director of a non-profit organization called The River Center.

by Abbey Kingdon

I set out for Africa to study holistic management after graduating from the Cal Poly Animal Science Department in June 2004. I wanted the chance to get an unbiased perspective on life, so I went to a new place where all previous



photo courtesy of Abbey Kingdon

Judy Richardson and Abbey Kingdon on an evening walk to check veld conditions.

comfort, safety and security were I created a holistic management philosophy that considers economic, social and ecological factors when managing ranches. I worked on cattle farms in Limpopo and Northwest South Africa. Holistic management is a life management philosophy that considers economic, social and ecological factors when managing ranches. I worked on cattle farms in Limpopo and Northwest South Africa. Holistic management is a life management philosophy that considers economic, social and ecological factors when managing ranches. I worked on cattle farms in Limpopo and Northwest South Africa.

Before leaving for South Africa I feared, more than anything the African night. What would it be like to wake up in the middle of the night in Africa? What sounds would I hear? What would the night feel like in a place so far from home?

The fear evolved into a hunger for places that feel alive. Places that are not controlled, safe and predictable. In Africa, I've never felt more awake, even when I slept. A whole new world comes alive when the sun goes down in the South African bush. Sounds from far away are close, bugs tick and hum, horned animals crunch through the low branches of acacia trees. Fireflies blink beneath the Southern Cross. At night one feels small, humbled by the lion's huffing call and blind before the sleek navigation of night predators. But dawn is victory. The animals cry out to the rising sun, letting the world know they made it through the night and it's good to be alive. My heart sang with them.

After adapting to the pace of the bush, I realized I had lived life with my senses turned down low. But the constant danger, imposed by other humans, animals or the environment that most South Africans incorporate into their daily lives, heightened my senses. Self-preservation instincts turned life up. An average day became a great day. Happiness became ecstasy. Fear became terror. And most days contained both.

But that is South Africa: contrast. With its 14 official languages, yet a movement to remove apartheid concepts of "white" and "black" and "colored" and replace them with a vision of united South Africans. Charming afternoon tea laced with conversations of farm murders and land claims. **-P**

Dressage riders turn heads in Ohio

Five members of the Cal Poly Dressage Team packed their bags and headed to the Intercollegiate Dressage Association National Championship in Concord, Ohio, April 23 and 24, 2005.

After winning the Western Region, Cal Poly was able to send a team to Lake Erie College to compete in team and individual competitions, bringing home a Gold award, two Silver awards, and a Reserve High Point award.

The four team members include Sarah Von Brandt, Erin Lewis, Elise Torres and Elinor Howard. Victoria Borg also qualified individually in the lower training level class.

The team was accompanied by their coach, animal science sophomore Josslyn Chandler and their adviser, Professor Jaymie Noland. "The whole team is lucky to have her," Von Brandt explained of Noland. "We wouldn't be here otherwise."

This is the second year Chandler has coached the dressage team. Because of her extensive showing experience, she is not able to compete at the collegiate level. "She gives up a lot to help the team," said Von Brandt, "And pays all the expenses out of her pocket."

Von Brandt, animal science graduate and former Dressage Team president competed in Three Day Eventing before joining the Dressage Team at Cal Poly. Her first trip to the IDA National Championship resulted in a Gold award in the First Level Test 4 class.

For her first trip to the National Championship, Lewis did very well winning Reserve High Point as well as a Silver award in the upper training level class. Lewis was a biochemistry senior, but switched to animal science.

Torres also brought home a Silver award in the lower training level class. Torres is a city and regional planning freshman.

N l l d h h i n i N l d -

-P



From left: Josslyn Chandler, Julia Daehling, Elise Torres, Sarah Von Brandt, Erin Lewis, Victoria Borg, Claire Gebers and Elinor Howard (kneeling).

2005 Ranch Horse Sale — better than ever -

Sale prices were as hot as the weather on May 21 at Cal Poly's 11th annual Performance and Ranch Horse Sale.

Project adviser, Mike Lund attributes better quality horses and a group of students that work well together to the "highest sale average we've ever had."

Twelve two-year-olds averaged \$3,600 while four older colts ranging between three and five years old averaged \$3,900. Four broodmares were also sold, averaging \$2,200.

Katherine Whitby, fourth year agriculture science student, rode the high selling two-year-old, Jewels Win. The buyer, Julie Steiner of Nipomo, received a \$270 headstall donated by the San Luis Obispo County Farm Supply.

The colts coming out of the Ranch Horse Enterprise are exposed to more than most two-year-olds. Because of the experience the students provide, Lund said, "Buyers are beginning to recognize the quality of Cal Poly's sale. They know what they are getting."

Twelve enterprise members and four student riders work

as a team to plan, organize, budget and market the sale. Lund stresses, "This is a completely student-run project, from start to finish."

The students' teamwork paid off, producing more than a horse sale, rather a Western event. Guests snacked on Cal Poly barbecue thanks to Meat Scientist and Professor Robert Delmore along with some of his students. There was also a wine tasting area for visitors to enjoy. Vendors were on site to sell jewelry and horse supplies, while there was also a silent auction.

Just as Cal Poly colts come from different breeding—pleasure, halter and working cow horses—the students come from different backgrounds as well.

Enterprise member Amy Housman, who competed in three-day eventing and jumping competitions, learned a lot about riding, but also a lot about herself and working with a team. Housman, a fifth year animal science student said, "It's nice for students who do not

come from ranching backgrounds to experience it."

Third year animal science student, Whitney Cox summed it up, "This is an opportunity I would never have had anywhere else." -P



Katherine Whitby, fourth year agriculture science student sits atop the high selling Jewels Win, who went home with Julie Steiner of Nipomo.

Students focused on ham, bacon and smoked turkey at the California Association of Meat Processors annual meeting in Chico, Calif. in February 2005.

Animal science students Phil Bass, Emily Lewis, Lauren Luque and Leslie Pint participated in a variety of activities at the meeting, ranging from tours of facilities, workshops and presentations.

They also had the opportunity to interact with small, family owned businesses. Animal science senior, Pint, enjoyed being able to "meet people and other students involved in the meat industry."

"You are able to see how [the owners] stress a high quality product through traditional methods, customs and showmanship," graduate student, Bass explained.

Part of the activities included presen-

A taste of the meats industry

tations by industry specialists. Dr. Gary Smith, a leading meat scientist from Colorado State University spoke on Bovine Spongiform Encephalopathy (BSE) issues.

Animal science sophomore Lauren Luque was intrigued by Dr. Smith's presentation. "I feel better about informing the public if questions arise," Luque said.

Professor Robert Delmore accompanied the students and took part in the workshops as a presenter. In cooperation with small business butchers, Delmore spoke about the scientific side of the ham making process.

A highlight for the Cal Poly students was the Cured Meat Show. Competing against five schools, Cal Poly did well in

the fresh sausage competition.

Delmore explains that the show was a great learning experience, "The students develop their own formulations and manufacture the products themselves".

Bass, who would like to work in the poultry or processed meats industry, won a Reserve Grand Champion Award for his Italian sausage.

Emily Lewis won a Champion Award for her sun dried tomato sausage. Luque received one of five merit awards for her chorizo sausage.

Student products, including Bass' Italian sausage, are available for sale at the Meat Science Facility. If you have any questions, please contact Bob Delmore at (805) 756-2254. -P

Teaching a process, not a lesson plan

Cal Poly Professor and Sheep Specialist Robert Rutherford used to approach teaching in a traditional manner. "I would present the material to the students, and then I would test them to see how much of that information they had memorized," he admitted.

But after enrolling in the Holistic Management Certified Educator Program, Rutherford has changed his methods. He believes that involvement is key to a student's education. Role playing and student generated teaching are just some of the new ways Rutherford engages his students.

In April 2005 Rutherford received his Holistic Management Certified Educator certification in Australia. While the program was only two and a half years long, Rutherford has been learning about holistic management for 14 years now. The program involved four intensive one-week sessions conducted in Wisconsin and Texas.

Rutherford explained that Holistic Management is a framework that can be applied to nearly every aspect of a person's life. He uses this thought process to emphasize the idea that education should be a continuous process for students, not just "something you check off once you're done with a class," Rutherford said.

Laura Unrue, now an animal science graduate who concentrated in rangeland management resources, took the holistic management class during the winter quarter in 2005. She said that the class structure was very unorthodox and a little awkward at first. But with time, she said, his techniques really help students grow to form their own opinions and ideas. "This class really challenges you to challenge the status quo," Unrue said.

In a nutshell, holistic management is a unique decision making process. Holistic management begins by defining what is being managed. Then, a person defines the financial resources available for this project. Once this is

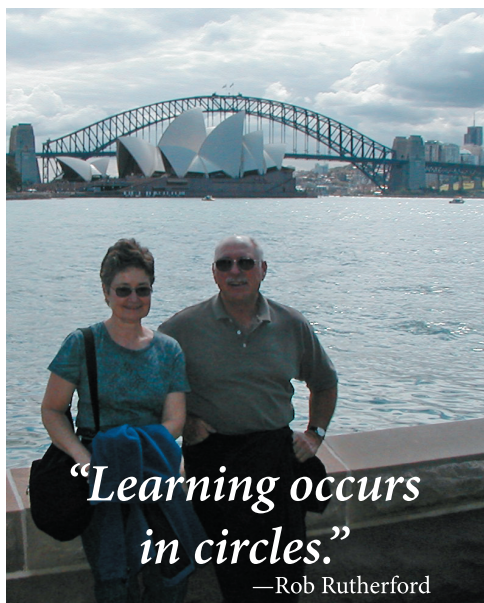


photo courtesy of Rob Rutherford

Rutherford and his wife, Martie, with the Sydney Opera House in the background.

determined, the next step is to outline the parameters for the "holistic goal." This goal takes into account the desired quality of life, what is needed to succeed and how you will sustain your future resource base. "We're talking about 100 years or more," Rutherford said as he stressed just how much into the future for which holistic management accounts.

Once these goals are established, it is time to make a decision. The next step involves detecting the early warning signs that the decision might have been wrong and then creating a course of action to correct it. What makes holistic management so effective is that it anticipates the problem before it occurs, which accounts for a long lasting solution.

Rutherford also runs the sheep unit at Cal Poly and applies the holistic management process to its grazing plan.

According to Rutherford, the best thing a student can walk away with from one of his classes is a sense of empowerment. "Everything happens because people make decisions," he said, and he tries to instill this power in his students so that they leave the classroom with a newfound sense of hope. -P

FALL 2005 CALENDAR OF EVENTS

SEPTEMBER

19 Classes begin

20 – Oct. 2 Snaffle Bit Futurity - Reno, Nev.

OCTOBER

1 Bull Test Field Day

2 Bull Test Sale

14 College of Ag Fall Preview

NOVEMBER

5 – 19 AQHA World Show - Oklahoma

24 – Dec. 3 NRHA Futurity Championship Show - Oklahoma

DECEMBER

11 Mid-year Commencement

FEBRUARY

17–19 Western Bonanza - Mid State Fairgrounds, Paso Robles, Calif.

JANUARY

26 Ag Showcase - Chumash Auditorium, Cal Poly

Giving to Cal Poly

Private gifts provide the Animal Science Department at Cal Poly with vital resources for maintaining our proud "learn-by-doing" tradition of excellence. You can help shape the Department's future through a philanthropic investment. The generosity of our supporters enriches the curriculum, builds new laboratories, provides scholarships, and attracts outstanding faculty.

For more information on making a gift to Cal Poly to benefit the Animal Science Department, please contact us at (805) 756-2419.

We sincerely appreciate your continued support!

A grand event indeed



photos courtesy of Wendy Hall



Department Head Andrew Thulin next to the Outstanding Seniors (from left): Laura Unrue, Patricia Slater, Jake Olson, Joseph Fischer, Lauren Everett and Tara Black. Not pictured: Adriana Rodriguez and Cassie Page.

With over 250 guests in attendance, the Animal Science Department's annual banquet was the largest gathering in recent years.

Rancho Santa Margarita provided the perfect backdrop for the event with its rich history and beautifully renovated barn. This year, the banquet committee decided to honor more than just outstanding students. Retirees Robert Vance, Gene Armstrong, Sue Simenz, Mike Lund and Roger Hunt were honored for their hard work and dedication to the department.

The 2005 outstanding senior awards went to Laura Unrue, Tara Black, Lauren Everett, Joseph Fischer, Jake Olson, Cassie Page, Adriana Rodriguez and Patricia Slater.

These students received the award based on academic standing as well as department involvement.

Laura Unrue of Lompoc Calif. will pursue a law degree to help create better understanding between farmers, ranchers and the environmental community.

Tara Black of El Cerrito Calif. plans to attend veterinary school and concentrate in large animals.

Lauren Everett of Arroyo Grande, Calif. was just hired with Platinum Performance.

Joseph Fischer of Valley Springs, Calif. will manage a purebred Angus ranch, get married and have a family.

Jake Olson of Santa Clara, Calif. will attend graduate school.

Cassie Page of Salinas, Calif. plans to become a Breed Association representative.

Adriana Rodriguez of Paskenta Calif. will pursue veterinary school.

Patricia Slater of Windor, Calif. will be applying to veterinary school in the fall of 2006. **-P**

ANIMAL SCIENCE STOCK REPORT

Summer 2005

Published by Cal Poly's Animal Science Department as a link among the nation's premier animal science program, alumni and friends. The department's doors are open and questions and comments are welcome.

www.animalscience.calpoly.edu • (805)756-2419 • animalscience@calpoly.edu

Bldg.. 10, Rm. 129

805. 756.3688

www.animalscience.calpoly.edu

Executive Editor: Dr. Andrew Thulin

Editor: Melissa L. Dorcak

Graphic Designer: Melissa L. Dorcak

Writers: Melissa L. Dorcak, Casey Cooley and Dr. Andrew Thulin

Photographers: Wendy Hall, Casey Cooley and Melissa L. Dorcak



California Polytechnic State University
Animal Science Department
San Luis Obispo, California 93407

NONPROFIT
ORGANIZATION
US POSTAGE PAID
SANTA BARBARA, CA
PERMIT 464